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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,737	10/22/2003	Amarendra Anumakonda	19441-0012	2736
29052 7590 01/08/2008 SUTHERLAND ASBILL & BRENNAN LLP 999 PEACHTREE STREET, N.E. ATLANTA, GA 30309			EXAMINER WARTALOWICZ, PAUL A	
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			1793	
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			01/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/605,737	ANUMAKONDA ET AL.	
	Examiner	Art Unit	
	Paul A. Wartalowicz	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,8-13 and 15-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,8-13 and 15-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 10/31/07 have been fully considered but they are not persuasive.

Applicant argues that the specification provides support for feeding a feed gas mixture comprising oxygen containing gas and a heavy hydrocarbon fuel through an inlet, along the reaction flow passage, and through the catalytic structure.

However, it appears that the specification lends support to mixing the oxygen containing gas and heavy hydrocarbon fuel at a temperature of less than 300°C. This temperature is disclosed in Dicks such that at least some pre-reforming takes place. It is unclear how the present invention is enabled to exclude pre-reforming based on the overlap of temperature ranges of the present invention and Dicks.

Additionally, it is unclear how the heavy hydrocarbon fuel is maintained at a temperature in the range of 150-240°C as the feed gas mixture is maintained at a temperature of under 300°C. It appears that the heavy hydrocarbon feed is part of the feed gas mixture and therefore it is unclear how the heavy hydrocarbon feed can have a different temperature range than the feed gas mixture.

Applicant argues that pre-reforming can not take place in the Applicants' pre-reaction zone because to do so would result in the premature reaction of the fuel gas mixture because to do so would result in the premature reaction of the fuel gas mixture.

However, it appears the temperature range cited (250°C -500°C) in Dicks is such that it would appear that a similar step (Dicks and the current application share a

temperature endpoint) is carried out in Dicks as in the present invention. Because the claimed temperature range and that of Dicks shares an endpoint, the advantages applicant argues that the claimed temperature range is substantially similar to those that would be achieved by Dicks at that common endpoint.

Additionally, it is reiterated that the pre-reaction zone of the present invention does not exclude the possibility of the pre-reaction zone comprising a pre-reforming zone. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., pre-reaction zone excluding a pre-reforming zone) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The prior does not need to *merely* reduce the temperature of the feed gas in the pre-reaction zone, but needs to teach or suggest that reducing the temperature of the feed in the pre-reaction zone would be obvious to one of ordinary skill in the art. Dicks teaches that it is obvious to pre-reform at low temperatures such as 250-500°C for the purpose of avoiding carbon deposition (page 117, col. 2, lines 1-7), which meets the limitation of a process comprising a pre-reaction zone at low temperatures as necessitated by the present invention.

In response to applicant's argument that Dicks does not teach maintaining the claimed temperature in order to reduce premature reaction of the fuel gas mixture, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the

differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicant argues that it would not be obvious to one of ordinary skill in the art to cool the pre-reaction zone with fins and/or a heat exchanger to maintain the temperature of the feed gas mixture below the flash point of the heavy hydrocarbon feed gas mixture until the feed gas mixture enters the catalytic reaction zone.

However, because the claims at issue are method claims, it is unclear how the use of an apparatus such as fins and/or heat exchangers lend a patentable distinction to the invention over the prior art. It appears that the combined prior art teach a substantially similar "cooling" of the pre-reaction zone to a temperature of below 300°C. Therefore, it does not appear that the use of fins and/or heat exchangers lend a patentable distinction to the instant invention.

Applicant argues that Abdulally makes no teaching or suggestion of the desirability of cooling a pre-reaction zone upstream of a catalytic to reduce premature reaction of the feed gas in the pre-reaction zone and that Abdulally does not make any teaching of the desirability of cooling a heavy hydrocarbon feed gas in a pre-reaction zone before conversion.

However, Abdulally is not relied upon to show the feed is cooled before conversion. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed.

Cir. 1986). Abdulally teaches that the methods of cooling including radiant and convective heat exchanging are known. The combination of references appear to teach the instantly claimed process in that Dicks teaches the temperature of the pre-reaction zone and Abdulally teaches known methods for cooling such that one of ordinary skill in the art would recognize that the known methods of cooling can be used to maintain the desired temperatures.

Applicant argues that Sircar teaches that increasing the temperature along the length of the catalyst bed may be beneficial to drive the reaction to completion before the gas exits the catalyst bed.

However, Sircar teaches the general principle that the temperature can be maintained at a high level to ensure the completion of the reaction. In response to applicant's argument that Sircar teaches that increasing temperature along the length of the catalyst bed may be beneficial to drive the reaction to completion before the gas exits the catalyst bed, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Regarding the argument with respect to Anumakonda in combination with Dicks, Isogaya, and Sircar; the remarks above are incorporated herein.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 11, 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification pointed to by applicant [0037] and [0051] recites that the temperature of the fuel is at the claimed range, not the feed mixture gas. Additionally, applicant does not appear to have support for "about 250°C". Applicant needs to point to the disclosure in the specification that lends support to the claim amendment.

Claims 1, 11, 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

It is not enabled as to how the heavy hydrocarbon fuel is maintained at a temperature in the range of 150-240°C as the feed gas mixture is maintained at a temperature of under 300°C. It appears that the heavy hydrocarbon feed is part of the feed gas mixture and therefore it is not enabled as to how the heavy hydrocarbon feed can have a different temperature range than the feed gas mixture.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, and 8-10 rejected under 35 U.S.C. 103(a) as being unpatentable over Anumakonda et al. (U.S. 6221280) in view of Dicks (Journal of Power Sources, vol. 61, pages 113-124) and Smith et al. (U.S. 3656905).

Anumakonda et al. teach a process for converting hydrocarbon fuel to hydrogen and carbon monoxide as main reaction products (col. 7, lines 40-44) comprising a catalytic structure disposed in the catalytic reaction zone comprising an oxidation catalyst supported on an open channel support (col. 8, lines 6-8) wherein the reactor has a an exterior wall (reactor shell, col. 10, lines 14-17), feeding a feed gas mixture comprising air (col.9, lines 26-28) and diesel fuel (col. 9, line 4) through the inlet wherein the feed mixture is passed through a supported catalytic structure (col. 7, lines 46-48).

and partially oxidized (col. 8, lines 33-34) at a temperature of 1050 ° C to produce a gaseous mixture outlet rich in hydrogen and carbon monoxide (col. 7, lines 49-51).

Anumakonda et al. fail to teach wherein the pre-reaction zone adjacent the catalytic reaction zone to maintain the temperature of the feed gas mixture below the flash point of the feed gas mixture until the feed gas mixture enters the catalytic reaction zone.

Dicks teaches a process for the partial oxidation of natural gas (methane, page 113, col. 2, lines 16-20) wherein it is known in the art to pre-reform higher hydrocarbons because of the hydrocarbons' propensity for carbon deposition (page 117, col. 1, lines 45-50). Dicks also teaches that pre-reform reactions are carried out at low temperatures for which carbon deposition reactions do not occur (250-500° C, page 117, col. 2, lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art to provide a feed gas mixture maintained at a temperature of 250-500°C (below the flash point of the feed gas, page 117, col. 2, lines 1-7) in Anumakonda et al. because it is well known that higher hydrocarbons have a propensity for carbon deposition and carbon deposition does not occur at low temperatures (250-500°C, page 117, col. 2, lines 1-7) as taught by Dicks in a chemically similar process of partial oxidation of hydrocarbons.

As to the limitation wherein the premature reaction of the feed gas mixture is reduced in the pre-reaction zone, it appears that the temperature of the pre-reaction zone is substantially similar to that of the claimed invention such that the advantages of the current invention are substantially similar in the prior art.

As to the limitations of a reactor shell, a pre-reaction zone, and post-reaction zone; when the prior art device is the same as a device claimed in the specification for carrying out the claimed method, it can be assumed that the device will inherently perform the claimed process. *In re King* 801 F.2d 1324, 231 USPQ 136(Fed. Cir. 1986).

It is unclear how the use of apparatus such as fins and/or heat exchangers lend a patentable distinction to the invention over the prior art. It appears that the combined prior art teach a substantially similar "cooling" of the pre-reaction zone to a temperature of below 300°C. Therefore, it does not appear that the use of fins and/or heat exchangers lend a patentable distinction to the instantly claimed process.

If the limitation of using a fin and/or heat exchanger is required, Smith et al. teach a process for producing hydrogen (col. 1) wherein it is known to use heat exchangers and/or fins to maintain a temperature in different parts of a process (col. 7-8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide heat exchangers and/or fins in Anumakonda et al. in order to maintain a temperature in different parts of a process as taught by Smith et al.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anumakonda et al. (U.S. 6221280) in view of Dicks (Journal of Power Sources, vol. 61, pages 113-124) and Smith et al. (U.S. 3656905) and Abdulally (U.S. 5567228).

Anumakonda et al. teach a process for the partial oxidation as described above.

Anumakonda et al. fail to teach wherein cooling is radiant, convective or carried out with a heat exchanger.

Abdulally teaches a method for cooling pollutants such as hydrocarbons (col. 1, lines 25-26) wherein a conventional heat exchanger arranged to be either convective or radiant (col. 1, lines 32-36) for the purpose of cooling pollutants such as hydrocarbons (col. 1, lines 25-26).

Therefore, it would have been obvious to one of ordinary skill in the art to provide a method for cooling wherein a conventional heat exchanger arranged to be either convective or radiant is arranged in Anumakonda et al. in order to cool pollutants such as hydrocarbons as taught by Abdulally.

Claims 11-13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anumakonda et al. (U.S. 6221280) in view of Isogaya et al. (U.S. 4331451) and Smith et al. (U.S. 3656905) and Sircar et al. (U.S. 6103143).

Anumakonda et al. teach a process for converting hydrocarbon fuel to hydrogen and carbon monoxide as main reaction products (col. 7, lines 40-44) comprising a catalytic structure disposed in the catalytic reaction zone comprising an oxidation catalyst supported on an open channel support (col. 8, lines 6-8) wherein the reactor has a an exterior wall (reactor shell, col. 10, lines 14-17), feeding a feed gas mixture comprising air (col.9, lines 26-28) and diesel fuel (col. 9, line 4) through the inlet wherein the feed mixture is passed through a supported catalytic structure (col. 7, lines 46-48)

and partially oxidized (col. 8, lines 33-34) at a temperature of 1050 ° C to produce a gaseous mixture outlet rich in hydrogen and carbon monoxide (col. 7, lines 49-51).

Anumakonda et al. fail to teach wherein maintaining the exit gas stream in the post-reaction zone adjacent the catalytic reaction zone at a temperature greater than about 600°C until the conversion of the feed gas mixture to hydrogen and carbon monoxide is substantially entirely complete.

Isogaya et al. teach a process for the partial oxidation of hydrocarbons (col. 1, lines 6-9) wherein the temperature of the exit of the catalyst bed is at least 800°C (col. 4, lines 47-50) for the purpose of inhibiting carbon deposition and accelerating methane decomposition (col. 4, lines 42-46).

Sircar et al. teach a process for producing hydrogen from hydrocarbons (col. 1, lines 27-32) wherein the temperature is increased toward the product end of the catalyst beds for the purpose of driving the reaction to completion (col. 13, lines 30-34).

Therefore, it would have been obvious to one of ordinary skill in the art to provide the temperature of the exit of the catalyst bed is at least 800°C in Anumakonda et al. in order to inhibit carbon deposition and accelerating methane decomposition as taught by Isogaya et al. and as is known that high temperature toward the product end of the catalyst beds drives the reaction to completion as taught by Sircar et al.

Although Isogaya does not explicitly teach a reaction temperature higher than 600°C, the temperature of the exit in Isogaya is above 800°C. One of ordinary skill in the art would recognize that immediately after exiting the reactor, the gas of Isogaya would have a temperature of at least 600°C as necessitated by the claim.

As to the limitations of a reactor shell, a pre-reaction zone, and post-reaction zone, and a post-reaction shield; when the prior art device is the same as a device claimed in the specification for carrying out the claimed method, it can be assumed that the device will inherently perform the claimed process. *In re King* 801 F.2d 1324, 231 USPQ 136(Fed. Cir. 1986).

Claims 17-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anumakonda et al. (U.S. 6221280) in view of Dicks (Journal of Power Sources, vol. 61, pages 113-124) and Smith et al. (U.S. 3656905) and Isogaya et al. (U.S. 4331451) and Sircar et al. (U.S. 6103143).

Anumakonda et al. teach a process for converting hydrocarbon fuel to hydrogen and carbon monoxide as main reaction products (col. 7, lines 40-44) comprising a catalytic structure disposed in the catalytic reaction zone comprising an oxidation catalyst supported on an open channel support (col. 8, lines 6-8) wherein the reactor has a an exterior wall (reactor shell, col. 10, lines 14-17), feeding a feed gas mixture comprising air (col.9, lines 26-28) and diesel fuel (col. 9, line 4) wherein a spray nozzle atomizer routes said diesel fuel to the catalytic reaction zone (spray nozzle atomizer introduces hydrocarbon fuel into the feed gas mixture with a fine mist, col. 9, lines 18-22) wherein a carbon to oxygen atom ratio in said feed gas mixture is from 0.5 to 1.0 (col. 9, lines 49-51) in the essential absence of water (col. 7, lines 55-56) at a rate within a range from about 0.01 ml to about 3 ml (col. 13, lines 36-38) through the inlet wherein the feed mixture is passed through a supported catalytic structure (col. 7, lines 46-48)

and partially oxidized (col. 8, lines 33-34) at a temperature of 1050 ° C to produce a gaseous mixture outlet rich in hydrogen and carbon monoxide (col. 7, lines 49-51) and the contact time is not greater than 500 milliseconds (col. 13, lines 38-41) and a liquid hourly space velocity in said catalyst is 0.5 to 75 h⁻¹ (col. 11, lines 14-16).

Anumakonda et al. fail to teach wherein the pre-reaction zone adjacent the catalytic reaction zone to maintain the temperature of the feed gas mixture below the flash point of the feed gas mixture until the feed gas mixture enters the catalytic reaction zone. Also, Anumakonda et al. fail to teach maintaining the exit gas stream in the post-reaction zone adjacent the catalytic reaction zone at a temperature greater than about 600°C until the conversion of the feed gas mixture to hydrogen and carbon monoxide is substantially entirely complete.

As to the claimed temperature of the feed gas, Dicks teaches a process for the partial oxidation of natural gas (methane, page 113, col. 2, lines 16-20) wherein it is known in the art to pre-reform higher hydrocarbons because of hydrocarbons a propensity for carbon deposition (page 117, col. 1, lines 45-50). Dicks also teaches that pre-reform reactions are carried out at low temperatures for which carbon deposition reactions do not occur (250-500 ° C, page 117, col. 2, lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art to provide a feed gas mixture maintained at a temperature of 250-500°C (below the flash point of the feed gas, page 117, col. 2, lines 1-7) in Anumakonda et al. because it is well known that higher hydrocarbons have a propensity for carbon deposition (page 117, col. 1, lines 45-50) and carbon deposition does not occur at low temperatures (250-500°C,

page 117, col. 2, lines 1-7) as taught by Dicks in a chemically similar process of partial oxidation of hydrocarbons. The combined teaching of Anumakonda et al. and Dicks (Journal of Power Sources, vol. 61, pages 113-124) reads on the limitation of preheating the heavy hydrocarbon fuel to a temperature greater than 180°C and less than the flash point of the feed gas mixture before or during introduction of the heavy hydrocarbon fuel.

As to the limitation wherein the premature reaction of the feed gas mixture is reduced in the pre-reaction zone, it appears that the temperature of the pre-reaction zone is substantially similar to that of the claimed invention such that the advantages of the current invention are substantially similar in the prior art.

As to the claimed temperature of the outlet of the reactor, Isogaya et al. teach a process for the partial oxidation of hydrocarbons (col. 1, lines 6-9) wherein the temperature of the exit of the catalyst bed is at least 800°C (col. 4, lines 47-50) for the purpose of inhibiting carbon deposition and accelerating methane decomposition (col. 4, lines 42-46).

Sircar et al. teach a process for producing hydrogen from hydrocarbons (col. 1, lines 27-32) wherein the temperature is increased toward the product end of the catalyst beds for the purpose of driving the reaction to completion (col. 13, lines 30-34).

Therefore, it would have been obvious to one of ordinary skill in the art to provide the temperature of the exit of the catalyst bed is at least 800°C (col. 4, lines 47-50) in Anumakonda et al. in order to inhibit carbon deposition and accelerating methane decomposition (col. 4, lines 42-46) as taught by Isogaya et al. and as is known that high

temperature toward the product end of the catalyst beds drives the reaction to completion (col. 13, lines 30-34) as taught by Sircar et al.

As to the limitations of a reactor shell, a pre-reaction zone, and post-reaction zone; when the prior art device is the same as a device claimed in the specification for carrying out the claimed method, it can be assumed that the device will inherently perform the claimed process. *In re King* 801 F.2d 1324, 231 USPQ 136(Fed. Cir. 1986).

It is unclear how the use of apparatus such as fins and/or heat exchangers lend a patentable distinction to the invention over the prior art. It appears that the combined prior art teach a substantially similar "cooling" of the pre-reaction zone to a temperature of below 300 degrees Celsius. Therefore, it does not appear that the use of fins and/or heat exchangers lend a patentable distinction to the instant invention.

If the limitation of using a fin and/or heat exchanger is required, Smith et al. teach a process for producing hydrogen (col. 1) wherein it is known to use heat exchangers and/or fins to maintain a temperature in different parts of a process (col. 7-8).

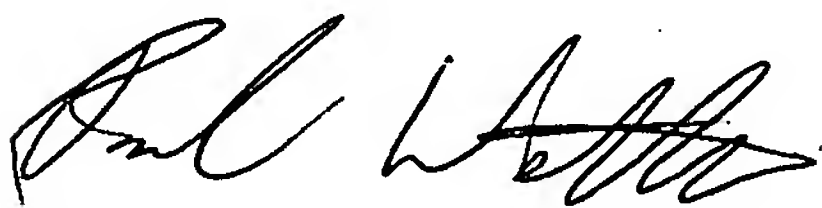
Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide heat exchangers and/or fins in Anumakonda et al. in order to maintain a temperature in different parts of a process (col. 7-8) as taught by Smith et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Paul Wartalowicz
January 3, 2008

/Steven Bos/
Steven Bos
Primary Examiner
A.U. 1793